To: "Suplee, Mike" [msuplee@mt.gov]; LaVigne, Paul" [plavigne@mt.gov]; ina Laidlaw/MO/R8/USEPA/US@EPA[]
From: "Blend, Jeff"
Sent: Mon 8/1/2011 6:16:43 PM
Subject: Public Demonstration of Hardship documents
Demonstration SW Public Documentation07_26_2011v2.docx
MT S_W Demonstrationw_TinaJeff (2).xlsx

Attached are the latest Public Demonstration worksheet and the latest Excel spreadsheet that Tina and I are working off of. These are current.

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Demonstration of Substantial and Widespread Economic Impacts to Montana That Would Result if Base Numeric Nutrient Standards had to be Met Today-- DRAFT

Executive Summary

An analysis was undertaken to determine the degree and extent of economic impact that would occur in Montana if base numeric nutrient standards had to be met today by all publically owned wastewater treatment plants (WWTPs). DEQ used technical data from engineers and published papers, U.S. census and demographic data, DEQ staff, EPA staff, and data from Montana WWTP operators to carry out the analysis. The analysis showed that communities across Montana would bear substantial and widespread economic impacts (i.e., economic hardship) from having to meet base numeric nutrient standards today. DEQ estimates that greater than 95% of Montana communities would bear substantial and widespread economic burden if required to meet the criteria today.

Background

It would be nice to include some basic background on MT perhaps. For example, what about summarizing the base numeric nutrient criteria to put the information into context?

In 2008, DEQ presented MT's draft criteria for wadeable streams to their stakeholders (see Table 1 below). While stakeholders understand that the criteria were derived based on sound science and reflect values that are protective of the designated uses, the proposed criteria are stringent. As a result, the stakeholder community has been concerned about what their permit limits will be as well as the opportunities for variances. Most WWTPs discharging into wadeable streams do not have instream dilution and will be required to meet the nutrient criteria end-of-pipe. For the Yellowstone River, the proposed criteria are close to ambient concentrations upstream of the discharger and the mainstem is listed as impaired for nutrients. This situation results in the WWTPs along the Yellowstone needing to meet the proposed criteria at the end of pipe.

Table 1. Montana Draft Nutrient Criteria

Level III Ecoregion	Period When Criteria Apply	Parameter		
		Total P (mg/L)	Total N (mg/L)	Benthic Algae Criteria
Northern Rockies	July 1 -Sept. 30	0.012	0.233	150 mg Chl *a*/m^2 (36 g AFDW/m^2)
Canadian Rockies	July 1 -Sept. 30	0.006	0.209	150 mg Chl *a*/m^2 (36 g AFDW/m^2)
Middle Rockies	July 1 -Sept. 30	0.048	0.320	150 mg Chl *a*/m^2 (36 g AFDW/m^2)
Idaho Batholith	July 1 -Sept. 30	0.011	0.130	150 mg Chl *a*/m^2 (36 g AFDW/m^2)
Northwestern Glaciated Plains*	June 16-Sept. 30	0.123	1.311	n/a

Northwestern Great Plains*, Wyoming Basin*	July 1 -Sept. 30	0.124	1.358	n/a

Suplee, M., V. Waterson, A. Varghese, and J. Cleland. 2008. Scientific and Technical Basis of the Numeric Nutrient Criteria for Montana's Wadeable Streams and Rivers. Montana Department of Environmental Quality.

Senate Bill 367 was signed by Governor on April 21, 2011. The statute exempts the State and all dischargers from the federal requirement to demonstrate that attaining the designated use is not feasible due to "substantial and widespread economic and social impact" (40 CFR Section 131.10(g)(6)).

SB 367 authorizes individual, general and alternative variances. Under the general variance limits established in SB 367, permit limits would be established at 1 mg/l TP and 10 mg/l TN for facilities discharging ≥ 1 MGD or 2 mg/l TP and 15 mg/l TN for facilities discharging ≤ 1 MGD. Lagoons would be capped at their current load.

Existing wastewater fees in Montana average about 0.8% of MHI across the state, with larger towns paying as little as 0.3% and smaller towns paying up to 1.96% (Figure 1). Most towns currently pay less than 1.5% MHI, with the majority of those paying less than 1.0% of MHI for wastewater treatment.

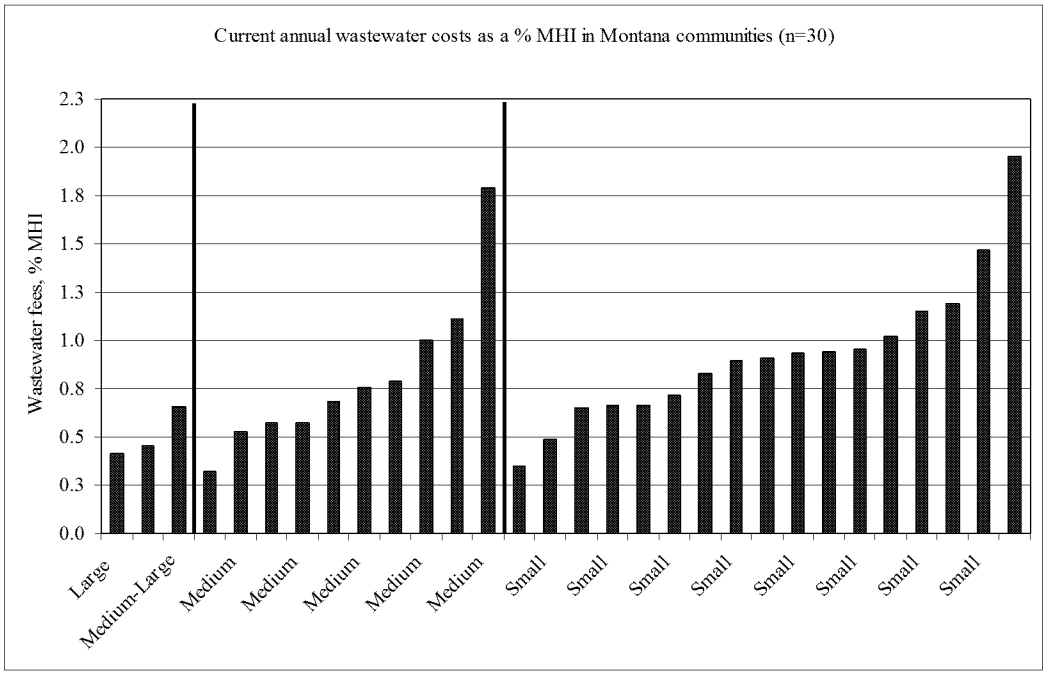


Figure 1. Wastewater rates as a function of median household income as of 2008. Communities were selected via a stratified random process for three groups (small, medium, and large communities).

To complete the demonstration, 27 publicly owned plants ~~and X private facilities~~ were evaluated as a representative subset of the larger population of dischargers. The public discharger selected for the anlaysis represented larger communities with major dischargers (> 1MGD), smaller towns with minor dischargers (< 1 MGD), and lagoon systems. Site specific information on the existing treatment technologies, facility-specific effluent data and community demographics were obtained for this subset and extrapolated to publicly owned plants throughout the state with similar wastewater treatment trains and similar demographics.

This document provides DEQ's demonstration supporting the statute language that all dischargers are exempt from meeting the base nutrient standards based on "Substantial and Widespread" economic impacts.

Summary of DEQ's Three-Step Process for Determining Substantial and Widespread Impacts

EPA regulations allow a variance if the pollutant controls "…would result in substantial and widespread economic and social impact" (40 CFR 131.10(g)(6)). For public entities (e.g. POTWs) EPA's 1995 Guidance suggests a three-step process to determine substantial economic impacts and an additional analysis to determine widespread impacts. DEQ followed EPA's guidance to determine whether WWTPs in Montana would face economic hardship.

Following EPA's 1995 guidance, the first of two major metrics in the Substantial determination is to demonstrate that meeting the numeric nutrient criteria (also referred to here as base numeric nutrient standards) today would cost more than 2% of a community's Median Household Income (MHI) for Montana communities with WWTPs that would have to meet numeric nutrient criteria. For the step, DEQ calculated the "Municipal Preliminary Screener (MPS)" value (per EPA's guidance) for a subset of dischargers reviewed as part of DEQ's demonstration. The MPS is an estimate per household cost of pollution controls as a percent of median household income (%MHI). If the MPS value was >2%MHI, then this suggests possible Substantial impacts and the discharger proceeds to the Secondary test, which is the second major metric in the Substantial determination.

For the Secondary test, DEQ evaluated a suite of five socioeconomic indicators for a subset of representative of small, medium and large communities (e.g., bond rating, overall net debt as a percent of the full market value of taxable property, unemployment rate, median household income, property tax revenues, and property collection rate). Montana's Secondary test, as modified from the 1995 EPA Economic Guidance, looks at the following economic metrics for a given town and compares the town level to the state average.

- Poverty Rate
- Low and Moderate Income rate
- Unemployment Rate
- Median Household Income
- Current local tax and fee burden

DEQ converted indicator values to a score of 1(weak), 2(mid-range), or 3 (strong) and averaged all 5 indicators to obtain a community indicator value from 1-3. The outcomes of both tests, the Screener and the Secondary test, were assessed on a matrix (Figure 2) to determine if water treatment costs to meet standards would cause substantial economic impact. For example, a community with:

a. A mid-range (1.5-2.5) secondary test score and a weak (> 2.0%) municipal preliminary screener score, would have substantial economic impact.

b. A mid-range (1.5-2.5) secondary test score and a strong (< 1.0%) municipal preliminary screener score, would not have substantial economic impact.

Figure 2. Secondary Score Indicator Matrix

		Municipal Preliminary Screener		
		> 2.0% (weak)	1.0% - 2.0% (mid-range)	< 1.0% (strong)
Secondary test score	< 1.5 (weak)	✓	✓	?
	1.5 – 2.5 (mid-range)	✓	?	×
	> 2.5 (strong)	?	×	×

✓ = Substantial economic impact
? = Possible substantial economic impact
X = No substantial economic impact

If a town lands within a check mark or question mark within the matrix, then the first two steps constitute a 'Significant' finding for Montana communities with affected WWTPs. The third step is to demonstrate a 'Widespread' finding for all or almost all Montana communities with WWTPs that would have to meet the base numeric nutrient criteria. EPA's 1995 guidance calls for a separate "widespread" demonstration that uses a variety of possible economic indicators, but with much more flexibility than the procedure for substantial impacts. The widespread demonstrations should assess the magnitudes of such indicators as increases in unemployment, losses to the local economy, changes in household income, decreases in tax revenues, indirect effects on other businesses, and increases in sewer fees for remaining private entities. While these widespread indicators are examples of things to look at, none are mandatory, and the analyst has discretion as to which to use.

Results of Montana's Substantial Evaluation

Within Montana, the size and types of wastewater treatment plants vary significantly, ranging from lagoon systems to systems using advanced biological nutrient removal. Table 2 summarizes the number of major and minor public dischargers in the State.

Table 2. Municipal WWTPs in Montana

Major Discharger	Minor Discharger	Lagoons
Fill in		

To address the first step in the Substantial test, DEQ developed a detailed Excel spreadsheet (Appendix A) to calculate the annualized capital and operations and maintenance costs (O&M) associated with meeting the base numeric nutrient standards and estimate the %MHI associated with the increased sewer rates plus current sever rates. Capital and O&M costs were estimated from the Interim WERF study: "*Finding the Balance Between Wastewater Treatment Nutrient Removal and Sustainability, Considering Capital and Operating Costs, Energy, Air and Water Quality and More*" (Draft 2010). Table X summarizes the attainable effluent quality and costs of different treatment options from this report. Appendix B documents all the underlying assumptions applied in the Substantial test.

Table X. Effluent Quality and Associated Treatment Costs (WERF 2011)

Level	Description	Capital Cost ($/gpd)	Operations ($1,000/yr/10 MG Treated)
Level 1	No N and P removal	9.3	250
Level 2	1 mg/l TP; 8 mg/l TN	12.7	350
Level 3	0.1-0.3 mg/l TP; 4-8 mg/l TN	14.4	640
Level 4	<0.1 mg/l TP; 3 mg/l TN	15.3	880
Level 5	<0.01 mg/l TP; 1 mg/l TN	21.8	1370

Costs for the S&W demonstration were estimated based on the assumption that reverse osmosis (RO) would be the technology used to meet base nutrient criteria. A 'Pilot Study for Low Level Phosphorus Removal' ([2010] Hal Schmidt, P.E.MWH Americas, Inc.), conducted in Florida shows that for TP, TN, and other micro-pollutants, RO was indeed the most effective method for removing TN and TP (better than membrane bioreactor, MBR). Dave Clark of HDR Engineering, agreed that RO is the treatment that results in the lowest TN levels, and that the WERF report accurately reflects capital and operations costs for RO. Thus, this study supports the assumption of using RO technology for this demonstration of economic hardship. (It is important to note that this does not mean that Montana WWTPs would use RO to meet LOT or nutrient criteria in practice.) Current nutrient levels at the 27 towns were compared to costs levels that would be needed to meet RO based on the WERF study. In this way, annual capital and operations costs were applied to each town, and new wastewater bills were calculated for a scenario where towns would have to meet RO and thus base nutrient criteria.

Calculation of the Municipal Preliminary Screener

Table 2 presents the Municipal Preliminary Screener results for the 27 communities evaluated in the analysis. DEQ examined the costs that would be incurred by six of the largest seven Montana towns (Billings, Great Falls, Bozeman, Butte, Helena, and Kalispell). Missoula was assumed not to have to meet the criteria for the Clark Fork. The rationale for this approach was that if any WWTPs could afford meeting numeric nutrient criteria, it would be Montana's largest towns due to the already-sophisticated systems in place and/or large populations across which costs can be dispersed (economies of scale). Differences in the MHI levels for these six towns include current levels of nutrient treatment, town population, current MHI, and current wastewater fees. Based on our analysis, four out of six of the largest towns in Montana would score over the 2% MHI threshold to meet base criteria (Table 2).

Table 3. % MHI Results

Community	Expected % MHI	Population	MGD
Larger Facilities (> 1 MGD)			
Kalispell	1.61	27,544	3.1
Bozeman	2.23	37,280	5.8

Helena	1.53	28,190	6
Butte	2.00	33,525	9
Missoula	1.63	66,788	21
Great Falls	4.21	58,500	26
Billings	2.41	104,170	
Lewistown			
Whitefish			
Glendive			
Miles City			
Hamilton			
Livingston			
Medium / Small Facilities (> 1 MGD)			
Columbia Falls	2.27	4,688	0.7
Philipsburg	2.57	820	0.2
Cut Bank	3.20	2,869	
Manhattan		1,520	
Lagoons			
Circle			
Deer Lodge		3111	2.4
Redlodge			
Havre			1.8 (lagoon?)
Montana City			
Big Fork			
Highwood			
Belgrade			

Analysis of information from several small to medium size communities showed that all communities would face a 2% MHI if required to meet the base numeric nutrient criteria (Table 2). From the analysis is it clear that small towns in Montana, which comprise the majority of WWTPs, would pass the 2% MHI threshold

Actual engineering data was available to assess compliance with the SB 367 general variance requirements of 1 mg/l TP and 10 mg/l TN for several WWTPs (Table 3). DEQ compared these cost estimates to the generalized costs from the national WERF study. These data also indicate that most small communities will face >2% MHI to meet levels of nutrient removal that are at least one magnitude less stringent than the base criteria.

Table 4. Estimated cost relative to community median household income for Montana communities to remove nutrients to the concentrations specified for each.

WWTP	Data Source	Level of Treatment (approx)	Percent MHI to meet level of treatment
Phillipsburg		15 mg TN/L; 2 TP mg/L	2.57
Deer Lodge		10 TN; 1 TP mg/l	4.05

Manhattan	10 TN; no TP removal	3.38
Columbia Falls	4-8 TN; 0.5-1.0 TP	1.34
Circle		

Calculation of the Secondary Score

The second step in demonstrating Substantial effects involves a evaluating a community's current economic health and is referred to in EPA's 1995 guidance as the Secondary Score. DEQ calculated the secondary score values for the list of communities in Table 2 by obtaining data from the following sources. Appendix C provides the secondary scores for each community, along with the total secondary score value and the five socioeconomic indicators.

Table 5. Data Sources for the Secondary Score Indicator

Secondary Score Indicator	Data Source	Weblink
Poverty Rate	Montana Census Data (MT CEIC); 2000 Census; 2009 American Community Survey Data	http://ceic.mt.gov/Demographics.asp http://www.census.gov/prod/2010pubs/acsbr09-1.pdf
Low and Moderate Income rate	Montana Census Data (MT CEIC); Census 2000	To calculate LMI for each block group, the number of families with 80% of $40,487 is divided by the total number of families in that block group.
Unemployment Rate	Montana Dept of Labor and Industry, Research and Analysis Bureau, Local Area Unemployment stats compiled by CEIC.	http://www.ourfactsyourfuture.org/ Montana: http://www.ourfactsyourfuture.org/cgi/databrowsing/?PAGEID=4
Median Household Income	Montana Census Data (MT CEIC), U.S. Census Bureau, Small Area Income and Poverty Estimates	http://www.census.gov/hhes/www/saipe/index.html
Current local tax and fee burden	Jeff to add report cite	

For each community, each of these factors are scored as either weak, average or strong compared to state averages. Median household income is applied differently in the context of the Secondary score and provides a general indicator of the health of the community versus the way it is used in the Screener. The stronger the secondary score numerical rank is (the average score of the five economic metrics), the more able a town is expected to pay towards for meeting numeric nutrient criteria. The highest or strongest score a community could get would be a 3.0 (based on scoring a 3 score on all five categories—See Appendix 3) and lowest would be a 1.0 (based on scoring a 1 score on all five socioeconomic categories). An average score of less than 1.5 is considered a weak Secondary score, 1.5 to 2.5 is considered mid-range, and over 2.5 is considered strong.

Results from the Municipal Preliminary Screener (step #1) are combined with the community's secondary score to determine if a town is facing significant "Substantial" impacts associated with meeting the base nutrient standards (see Figure 2 on page3) .

Secondary score values for the 27 Montana towns sampled ranged between 1.6 and 2.6 (Table 6). The town of Ismay had the highest secondary score of 2.6 based on What??. Larger towns (i.e, Billings, Bozeman, Helena, Great Falls, Missoula) has secondary scores between 2.0 or 2.2. Combined with the MPS results, X out of X communities were considered to be "substantially" affected by requirements to meet the numeric nutrient criteria. Because step one and step two are met for more than 95% of Montana towns, a substantial impact has been demonstrated. We have shown this to be the case for virtually every town in Montana.

Table 6. Secondary Scores for MT communities

Community	Secondary Score
Kalispell	
Bozeman	
Helena	
Butte	
Missoula	
Great Falls	
Billings	
Columbia Falls	
Philipsburg	
Cut Bank	
Deer Lodge	
Manhattan	
Circle	
Redlodge	
Havre	
Montana City	
Big Fork	
Highwood	
Belgrade	

Widespread Analysis

The third major metric in the S&W demonstration is the widespread test. EPA's 1995 guidance recommends consideration of the following socioeconomic information in the widespread test: changes in unemployment, losses to the local economy, changes in household income, decreases in tax revenues, indirect effects on other businesses, and increases in sewer fees for remaining private entities.

DEQ considered the widespread analysis based on the following question: For each town, what are the ripple effects of the substantial impact on the local area? An important step was to define the geographic area where project costs pass through to the local economy. For Montana's widespread analysis, DEQ established the entire state as the "geographic area" considered in the widespread demonstration. DEQ's analysis focused on an examination of:

- the baseline economic health of the community/area;
- population and economic trends; and
- the socioeconomic well-being of the community before and after wastewater fee increases.

Socioeconomic impacts were evaluated for Widespread Impacts by their cumulative effect and by the analyst's Best Professional Judgment. Most towns are small and rural or small and a suburb of a larger town. Statewide, there are approximately 100 small towns with WWTPs that will be impacted by meeting the numeric nutrient criteria. In Montana, about 15-20 towns are "medium to large" and are more urban-based with more diverse economies. Six towns have more than 20,000 in population and a seventh town (Kalispell) is at an estimated 19,927 (Montana CEIC, Census 2010). Another ten towns with affected WWTPs are at over 5,000 in population.

DEQ believes that at least 95% of affected Montana towns would experience widespread impacts by having to meet base numeric nutrient standards today. DEQ's Widespread argument is as follows.

- The fact that almost every town in Montana would experience a 2% or greater impact on MHI from having to meet numeric nutrient criteria suggests widespread impacts across the state. Of the X communities examined, X & showed substantial impacts. The aggregated effects of substantial impacts on such a large number of individual communities would likely result in widespread effects at the statewide scale.
- Small towns make up about 80-85% of the total number of WWTPs statewide.
- Most small towns (< 5000 people) are agriculturally-based with treatment lagoons. The cost relative to MHI will likely be much higher than 2% for the majority of these towns considering that most have lagoons that would need complete, major upgrades and most have small populations to spread that cost. Many of these towns are already losing population and business and currently have the highest sewer rates within the state (on average).
- A substantial increase in the wastewater bill could tip the scales for a percentage of residences based on decreased disposable income as a result of the increase in the wastewater bill.
- Since most small towns do not have diverse economies, even a small decrease in business and in population can have a large effect on small towns that are struggling. For example, some small towns have less than 10 businesses total.
-
- Montana is currently 41st in the nation in per capita income as of 2009 at $22,881 (Data Set: 2005-2009 American Community Survey 5-Year Estimates, American Community Survey, Montana CEIC). Prices in Montana are about average for the U.S. across all goods. Montanans on average do not have as much disposable income as the average American, and may have slightly higher living expenses due to long travel distances and higher heating bills.
- It is assumed that all towns under 5,000 persons would experience Widespread impacts.
- It is estimated that all towns in Montana will pay at least 2% MHI in their total wastewater bill to meet base numeric nutrient standards, or at least 1.2% MHI more than they are currently paying *on average* (current bills average about 0.8% across Montana). Thus, most wastewater bills

would at least triple for communities to meet the numeric nutrient criteria. In a state with less disposable income than average, a change in disposable income of 1.2% or more (up in the double digits in some cases) will produce widespread effects on households and businesses (some businesses more than others).

- Towns with populations over 5,000 will likely show mixed results in terms of Widespread impact. The six large towns affected by nutrient criteria would experience Widespread impacts in terms of disposable income, but probably would not see their economy collapse. In other words, these large towns would not shut down, but certain residences and businesses would experience substantial impacts. Another 12 or so medium to large towns would probably experience Widespread impacts overall for the same reasons as discussed above, but less severe impacts than the over 100 smaller towns with affected WWTPs.
- The current Recession could complicate these effects. Even if one-third of these medium to large towns did not experience Widespread impacts, more than 95% of Montana's affected towns still would meet the 'almost all' threshold for Widespread impacts.
- To meet the base numeric nutrient criteria will also require hiring highly qualified wastewater engineers. There could be widespread impacts associated with finding these qualified staff for facilities across the state and then paying them a competitive salary. Salaries in Montana for WWTP engineers are (X) but
- The 2010 census data showed that Montana's population is aging. This trend, coupled with increased living expenses associated with meeting the base nutrient standards, could have negative impacts on a statewide scale.
- MDEQ's substantial and widespread analysis assumed that reverse osmosis or some ion exchange treatment technology would be required. Either technology is both economically and environmentally costly. Reverse osmosis generates brine that must be disposed of properly and results in significantly higher greenhouse gas emissions. Aggregated at the statewide scale, both the economic and environmental implications would have widespread impacts for the State of Montana.

Conclusions

This demonstration shows that meeting the numeric nutrient criteria on a statewide basis would result in Substantial and Widespread economic impacts to Montanans. (for public sector). Of the 27 publicly-owned dischargers reviewed in this analysis, 93% of them demonstrated Substantial and Widespread Economic impacts. While 100% of the communities do not face economic hardship, DEQ believes that if 93% of the communities demonstrate Substantial and Widespread impacts, then DEQ has shown economic hardship at the statewide scale. The only 2 communities that did not exceed EPA's 2% MHI threshold are Kalispell and Helena.

Private industry.....

APPENDIX 2

Description of the Assumptions/ Details in the Spreadsheet

- The analysis focused on the 7 larger communities in MT (7 communities with the highest MHI and largest population).
- Data compilation was initiated for some smaller communities.

- Population estimates are based on 2010 data from USDA and reflects the population for the county. The population served by the WWTP may be different than this population. This assumption may reduce the final MHI if the county population exceeds the community served by the WWTP.

- The number of persons per households was calculated based on the 2000 census data of 2.5. This estimate should be updated if possible.

- The MHI values are based on data available on: http://www.ers.usda.gov/data/unemployment/RDList2.asp?ST=MT&SF=11A. These MHI values differed from DEQ's estimated MHI values. For example, the USDA site showed the MHI for Cutbank at $29,000 compared to DEQ's estimates of $43,000. The lower number was used to err on the side of being conservative.

- Current sewer rates per household were obtained from several sources:

    - Direct calls to the municipalities to obtain sewer rate information (used for the 3 larger communities).

    - A summary table developed by DEQ in 2006 was

- The cost estimates for upgrading WWTPs are obtained from the Interim WERF study: "Finding the Balance Between Wastewater Treatment Nutrient Removal and Sustainability, Considering Capital and Operating Costs, Energy, Air and Water Quality and More" (Draft 2010). This report is Draft and the capital costs are anticipated to increase in the final report based on feedback from the technical reviewers. Based on actual costs observed in Region 1, Region 1 considered the capital costs to be higher than experienced in the final facility plan.

- Operation costs include energy and chemical costs only and do not include labor and maintenance cost. As such, these numbers are on the low side. That said, the capital and O&M costs are based on building from scratch, assuming that no infrastructure exists. This assumption may balance the lower O&M costs.

- Design flow was used to determine the capital costs and actual flow for the Operations costs.

- Annual costs of both capital and operations estimates were used in the spreadsheet to calculate the increase in sewer rates and percent MHI.

- The numbers are intended to provide ROUGH ESTIMATES for discussion purposes and do not reflect the site-specific conditions at each plant.

- Capital costs were assumed to cover a 20-year bond with 5% interest (used a conversion factor of 0.0802).

Appendix 3-Secondary Indicators

Table 2-1 Secondary Indicators for the Municipality (or study area) as of 2009. The scores given below are simply an illustrative example.

Town X: Poverty rate 20%, LMI 47%, Unemployment rate 7.1%, MHI $39,201, Property Tax index number 3.0%.

	Secondary Indicators			
Indicator	Weak*	Mid-Range**	Strong***	Score
Poverty Rate	More than 22%	10-22%	Less than 10%	**2**
Low to Medium Income Percentage (LMI)	More than 62%	33-62%	Less than 33%	**2**
Unemployment	More than 1% above State Average (>7.2%)	State Average 2009----6.2%	More than 1% below State Average (<5.2%)	**2**
Median Household Income	More than 10% below State Median	State Median--$43,948 (2008)	More than 10% above State Median	**1**
Property Tax, fees and revenues divided by MHI and indexed by population	More than 3.5	3.5 to 2	Less than 2	**3**

* **Weak is a score of 1 point**

** **Mid-Range is a score of 2 points**

*** **Strong is a score of 3 points**

SUM: 10

AVERAGE: 2.00

There are five socioeconomic criteria that are summed up and averaged to see where the households within a community fall in terms of financial health. For each of the five criteria, a strong score is recorded in the right hand column as a '3', indicating strong socioeconomic health for that criteria and thus a greater chance of being able to pay for additional wastewater treatment (and lesser chance of a variance). A mid-range score is recorded as a '2' and indicates moderate or average socioeconomic health for the particular criteria. A weak score should be recorded as a '1' and indicates poor socioeconomic health for the given criteria or less ability to pay (and a greater chance of being granted a variance). The average score of all five indicators falls into those same categories and should be judged in the same way.

For poverty rate and LMI, the strong, mid-range and weak score are derived by taking averages of each of these five indicators for all towns in Montana and then running a histogram. The histogram gives us breaks for strong, mid-range, and weak scores using best professional judgement. The same method is used for Property tax, fees, etc. except that a sample of 30 towns was used to create the histogram, due to the large data requirements and that we had to calculate this figure ourselves.

The last criteria, Property tax, fees and revenues divided by MHI and population, gives an indication of the existing burden on local residents within the municipality of fees for local services and of local taxes. Those citizens of towns already paying a lot of money relatively for services such as wastewater and garbage and/or paying higher local taxes are assumed to be less able to pay additional monies for additional wastewater treatment. Source: Annual Financial reports of the cities and towns of Montana, FY 2007 (Fy ending June 30, 2007) except for Froid which is FY 2008, Worksheet of interest within reports: 'Government-wide Statement of Activity', Local government Services Bureau, Mont

Secondary Score Case Studies--Public WWTPs

	Poverty Rate (2000)	LMI (2008)	Unemployment Rate (2009)	MHI (estimated 2008 number)	Total Revenues, Fees and Taxes divided by MHI indexed by population (FY 2007)
Baker	10.7	40.3	2.9	39,289	2.16
Billings	12	40.9	4.5	44,699	2.11
Bozeman	20.2	46.4	6.3	40,895	2.69
Broadus	14.5	51.1	3.7	31,993	2.70
Circle	18.3	41.1	3	34,974	2.44
Columbia Falls	17.1	42.5	10.7	39,588	2.04
Ekalaka	12.2	57.8	3.5	24,713	2.77
Ennis	11.9	41.8	5.6	39,088	1.88
Eureka	22.9	50.2	13.5	34,491	1.86
Froid	7.6	43.7	4.2	31,264	2.43
Fromberg	10	50.2	5.1	37,160	1.15
Great Falls	14.5	39.7	4.9	41,251	2.21
Havre	17.5	40.7	5	38,082	1.69
Helena	14.5	40.1	4.7	43,769	2.28
Ismay	0	39.1	4.4	40,802	0.12
Lewistown	13.6	40.1	4.9	36,817	2.22
Libby	16.3	55.9	13.5	30,874	2.23
Lima	26.8	60.7	4.5	25,834	2.08
Missoula	19.7	46.8	5.7	38,619	1.41
Neihart	21.7	60.2	7.6	27,290	3.45
Phillipsburg	19.8	49.2	9.2	31,234	2.86

Plentywood	16.3	43.5	4	38,200	1.48
Roundup	20.3	55.8	5.9	29,434	1.72
Shelby	8.6	39.2	3.9	37,160	2.70
Sidney	12.7	38.5	4.2	40,835	0.83
St. Ignatius	19.5	51.4	8.4	32,662	1.10
West Yellowstone	12.9	49.8	4.5	39,047	2.42

	Poverty Rate Secondary Score	LMI Secondary Score	Unemplyment Rate Secondary Score	MHI (estimated 2008 number) Secondary Score	Total Revenues, Fees and Taxes divided by MHI indexed by population Secondary Score	Average Score
Baker	2	2	3	1	2	2
Billings	2	2	3	2	2	2.2
Bozeman	2	2	2	2	2	2
Broadus	2	2	3	1	2	2
Circle	2	2	3	1	2	2
Columbia Falls	2	2	1	2	2	1.8
Ekalaka	2	2	3	1	2	2
Ennis	2	2	2	1	3	2
Eureka	1	2	1	1	3	1.6
Froid	3	2	3	1	2	2.2
Fromberg	2	2	3	1	3	2.2
Great Falls	2	2	3	2	2	2.2
Havre	2	2	3	1	3	2.2
Helena	2	2	3	2	2	2.2
Ismay	3	2	3	2	3	2.6
Lewistown	2	2	3	1	2	2
Libby	2	2	1	1	2	1.6
Lima	1	2	3	1	2	1.8
Missoula	2	2	2	1	3	2
Neihart	2	2	1	1	2	1.6
Phillipsburg	2	2	1	1	2	1.6
Plentywood	2	2	3	1	3	2.2
Roundup	2	2	2	1	3	2
Shelby	3	2	1	1	2	1.8
Sidney	2	2	1	2	3	2
St. Ignatius	2	2	3	1	3	2.2
West						

Yellowstone

Community	Current Treatment Technology	Would the criteria apply? Or is there dilution capability?	Design Flow (MGD)	Actual Flow (MGD)	Community Population	Number of Households (Population / 2.5) based on 2000 Census	Median Household Income (2010) - countywide MHI. Recommend updating for service area.	Current average household sewer bill per year (2008 / 2011)
Kalispell	BNR (modified Johannesburg); 3.1 to 5.4 MGD; avg. .12 mg/l TP; 10 mg/l TN.	EOP; Ashley Creek	5.4	3.10	27,544	10,012	$45,594.00	$216.00
Bozeman	some BNR now; 5-stage Barrdenpho; new plant will be BNR (1 mg/l TP; 3 mg/l TN starting in 2011); current 5.8 MGD; increasing to 13.9 mgd	Yes. Also Gallatin TMDL in the works.	13.8	5.80	37,280	14,614	$47,065.00	$372.00
Helena	BNR; 3 mg/l TP; 10 mg/l TN; design capacity of 5.4; current discharge ~3.0 MGD	Yes. WLA set in TMDL based on numeric criteria.	5.4	3.00	28,190	12,337	$52,317.00	$265.44
Butte	Current technology is activated sludge (TN of 18.5 mg/l; TP of 2.11 mg/l); under Order to Construct to membrane BNR; current design is 8.5 MGD; talking about lowering to 6.1 MGD. Sewer Fee based on DEQ estimtes. Included in current fee is $27 million upgrade in new capital costs and $1.125 million in O&M costs which would bring them to 5 TN and 0.1 TP	Yes. EOP.	8.5	4.00	33,525	14,041	$40,055.00	$360.00
"Big 7" Communities that Discharge to Large Rivers - criteria wouldn't apply								
Missoula	advanced secondary treatment facility with biological nutrient removal and ultraviolet disinfection; 6-9 MGD	SSC; should Missoula be included?			66,788	27,553	$40,130.00	$152.14
Great Falls	conventional 2ndary activated sludge (max 21-MGD; avg. 10 MGD)	Missouri River	25	26	58,505	23,998	$40,434.00	$187.20
Billings	2ndary treatment; Design flow of 26 MGD (avg.) and 40 MGD max.	N/A. Discharge into the Yellowstone River.	25	26	104,170	41,841	$45,004.00	$218.28
Smaller Communities with Lower MHIs								

Philipsburg	7th sequential batch reactor tank	Yes.	0.2	0.2	820	399	$35,806.00	200
Columbia Falls		Yes	0.766	0.37	4,688	1,621	$38,750	$532.20
Cut Bank		Yes			2,869	1,290	$29,000	$138.48
Deer Lodge		Yes			3,111	1,522	$40,320	$409.56
Manhattan		Yes			1,520	523	$50,729	$362.40
Circle								
Redlodge					9,756.00		$40,379	305.28
Havre					16,632.00		$38,082	240.00
Montana City								
Big Fork								
Highwood								

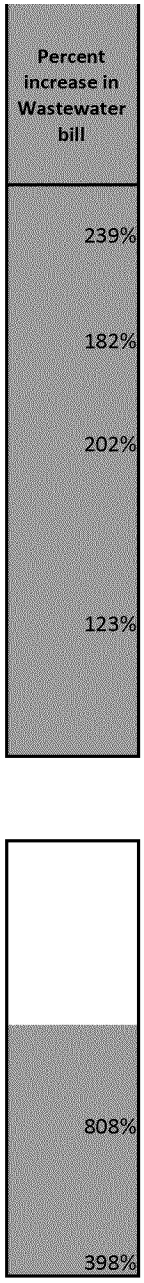
Belgrade	?? Separate WWTP? Part of gallaitin county.							313.80

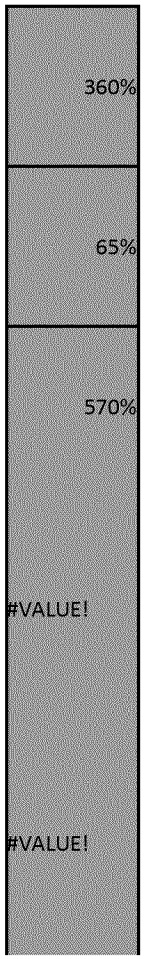
NOTE: Operation costs include energy and chemical costs only and do not include labor and maintenance cost. As such, these numbers are on the low side.
NOTE: The numbers are intended to provide ROUGH ESTIMATES for discussion purposes and do not reflect the site-specific conditions at each plant.
NOTE: Capital costs were assumed to cover a 20-year bond with 5% interest (used 0.0802 conversion factor)
NOTE: MHI is based on data from Montana CEIC based on 2010 estimates.

Current average sewer fee as % of MHI	Notes	Capital cost (million dollars) to meet the numeric nutrient criteria (WERF)	Annual Capital cost to meet the numeric nutrient criteria (L4 WERF)	Annual Operations costs to meet the numeric nutrient criteria L4WERF	Annual Capital and Operations cost ($)	Annual Additional Cost per Household (increase in sewer rate)	Predicted average household sewer fee to meet criteria	Expected % MHI to Meet Base Numeric Nutrient Criteria (plus current wastewater fees)
0.47%	Sewer rates obtained from City in 2011. Plant ~WERF Level 2.	$49.14	$3,941,028.00	1,228,530.00	$5,169,558.00	$516.34	$732	1.61
0.79%	Sewer rates obtained from City in 2011. Plant ~WERF Level 2. Really Level 3 for TN and 1 for TP	$102.12	8,190,024.00	1,684,610.00	$9,874,634.00	$675.70	$1,048	2.23
0.51%	Sewer rates obtained from City in 2011. Plant ~ WERF Level 1.	$67.50	$5,413,500.00	1,188,900.00	$6,602,400.00	$535.17	$801	1.53
0.90%	Sewer Fee based on DEQ estimtes. While current monthly fee is $13.50, the $27 million upgrade in new capital costs plus $1.125 million in additional O&M costs which would bring them to 5 TN and 0.1 TP would raise rates to $30 per month	$62.90	$5,044,580.00	1,161,800.00	$6,206,380.00	$442.02	$802	2.00
0.38%								
0.46%	The numbers for Billings and Great Falls (population, treatment levels, etc.) were obtained from HDR.	$312.50	$25,062,500.00	$11,252,800.0	$36,315,300.00	$1,513.26	$1,700	4.21
0.49%	The numbers for Billings and Great Falls (population, treatment levels, etc.) were obtained from HDR.	$312.50	$25,062,500.00	$11,252,800.0	$36,315,300.00	$867.94	$1,086	2.41

0.56%	lagoon to simple mechanical system - ref: Gary Swanson, consulting engineer- 15TN, 2TP	$200,500.00	$200,500.00	86,560.00	$287,060.00	$719.45	$919	2.57
1.37%	Upgrade to RO	$5.67	$454,605.68	108,337.85	$562,943.53	$347.28	$879	2.27
0.48%	4000 gallons. Base rate $9.48 at 3000 gallons plus $2.06 for next 1,000 gallons	$12.50	$1,018,540.00	5.67	$1,018,545.67	$789.57	$928	3.20
1.02%	Moving from an existing lagoon to mechanical plant with land application. Ref: planning document--To get to variance only. Because this would be a land application system, so theoretically, the N and P would be zero to the Clark Fork	?	$1,261,145.00	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!
0.71%	Mainly designed to remove ammonia and some TN, but now have NO3 limit. May be able to meet with operational changes. TP of 2 mg/l may require more capital & O&M expenses. Ref: planning document, SRF loan application	?	$606,312.00	?	#VALUE!	#VALUE!	#VALUE!	#VALUE!
	Sewer Fee and MHI based on DEQ estimates. DEQ MHI value less than the 2010 USDA county data.							
0.63%	Sewer Fee and MHI based on DEQ estimates. DEQ MHI value less than the 2010 USDA county data.							

	Sewer Fee based on DEQ estimtes.							


Percent increase in Wastewater bill
239%
182%
202%
123%
808%
398%


360%
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570%
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WERF

Level	Description	Capital Cost ($/gpd)	Operations ($1,000/yr/10 MG Treated)
Level 1	No N and P removal	9.3	250
Level 2	1 mg/l TP; 8 mg/l TN	12.7	350
Level 3	0.1-0.3 mg/l TP; 4-8 mg/l TN	14.4	640
Level 4	<0.1 mg/l TP; 3 mg/l TN	15.3	880
Level 5	<0.01 mg/l TP; 1 mg/l TN	21.8	1370

Costs to Meet Criteria	Capital Cost($million/MGD)	Design Flow	Facility Upgrade Capital Costs ($million)	Annualized Capital Costs (Assumed 20-yr bond & 5% interest; $million/year)
Kalispell	9.1	5.4	$49.14	$3.94
Bozeman	7.4	13.8	$102.12	$8.19
Helena	12.5	5.4	$67.50	$5.41
Butte	7.4	8.5	$62.90	$5.04
Philisburg	12.5	0.2	$2.50	$0.20
Billings	12.5	25	$312.50	$25.06
Great Falls	12.5	25	$312.50	25.0625
Columbia Falls	7.4	0.766	$5.67	0.45461

Deer Lodge
Manhattan
Columbia Falls

Annualized Capital Costs (Assumed 20-yr bond & 5% interest; $million/year)	Operations ($1/ MG/day Treated)	Operations Costs ($/ year/ 1 MGD)	Actual Flow	Facility Upgrade Operations Costs ($/year/1 MGD) based on Facility MGD	Membrane Replacement Cost ($24,000 /yr/1 MGD)*Actual Flow
$3,941,028.00	1020	372,300.00	3.10	1,154,130.00	74,400.00
$8,190,024.00	730	266,450.00	5.80	1,545,410.00	139,200.00
$5,413,500.00	1020	372,300.00	3.00	1,116,900.00	72,000.00
$5,044,580.00	730	266,450.00	4.00	1,065,800.00	96,000.00
$200,500.00	1120	408,800.00	0.20	81,760.00	4,800.00
$25,062,500.00	1120	408,800.00	26.00	10,628,800.00	624,000.00
$25,062,500.00	1120	408,800.00	26	10,628,800.00	624,000.00
$454,605.68	730	266,450.00	0.37	99,385.85	8,952.00

Total Operations costs including membrane replacement
1,228,530.00
1,684,610.00
1,188,900.00
1,161,800.00
86,560.00
11,252,800.00
$11,252,800.00
$108,337.85

Community	Current Treatment Technology	Would the criteria apply? Or is there dilution capability?	Community Population
Kalispell	BNR (modified Johannesburg); 3.1 to 5.4 MGD; avg. .12 mg/l TP; 10 mg/l TN.	EOP; Ashley Creek	27,544
Bozeman	some BNR now; 5-stage Barrdenpho; new plant will be BNR (1 mg/l TP; 3 mg/l TN starting in 2011); current 5.8 MGD; increasing to 13.9 mgd	Yes. Also Gallatin TMDL in the works.	37,280
Helena	BNR; 3 mg/l TP; 10 mg/l TN; design capacity of 5.4; current discharge ~3.0 MGD	Yes. WLA set in TMDL based on numeric criteria.	28,190
Butte	Technology is activated sludge (TN of 18.5 mg/l; TP of 2.11 mg/l); under Order to Construct to membrane BNR; current design is 8.5 MGD; talking about lowering to 6.1 MGD	Yes. EOP.	33,525
"Big 7" Communities that Discharge to Large Rivers - criteria wouldn't apply			
Missoula	Advanced secondary treatment facility with biological nutrient removal and ultraviolet disinfection; 6-9 MGD	SSC; should Missoula be included?	108,623
Great Falls	Conventional 2ndary activated sludge (max 21-MGD; avg. 10 MGD)	Missouri River	82,178
Billings	2ndary treatment; Design flow of 26 MGD (avg.) and 40 MGD max.	N/A. Discharge into the Yellowstone River.	104,170
Smaller Communities with Lower MHIs			
Philipsburg	7th sequential batch reactor tank	Yes.	820

Cut Bank		Yes	2,869
Deer Lodge		Yes	3,111
Manhattan		Yes	1,520
Columbia Falls	Columbia Falls already meets variance level standards	Yes- but Columbia Falls already meets it	4,688
Circle			
Redlodge			9,756.00
Havre			16,632.00
Montana City			
Big Fork			
Highwood			
Belgrade	?? Separate WWTP? Part of gallaitin county.		

NOTE: Operation costs include energy and chemical costs only and do not include labor and mainten
NOTE: The numbers are intended to provide ROUGH ESTIMATES for discussion purposes and do not r
NOTE: Capital costs were assumed to cover a 20-year bond with 5% interest (used 0.0802 conversion f
NOTE: MHI is based on data available on: http://www.ers.usda.gov/data/unemployment/RDList2.as
NOTE: Brine disposal costs are estimated based on calculations developed by Region 5. The city of M

draft numbers pending input

final draft numbers

Number of Households (Population / 2.5) based on 2000 Census	Median Household Income (2010) - countywide MHI. Recommend updating for service area.	Current average household sewer bill per year (2008 / 2011)	Current average sewer fee as % of MHI	Notes
10,012	$45,594.00	$216.00	0.47%	Already meeting variance levels. Sewer rates obtained from City in 2011. Plant ~WERF Level 2.
14,614	$47,065.00	$372.00	0.79%	Already meeting variance levels. Sewer rates obtained from City in 2011. Plant ~WERF Level 2. Really Level 3 for TN and 1 for TP
12,337	$52,317.00	$265.44	0.51%	Sewer rates obtained from City in 2011. Plant ~ WERF Level 1.
14,041	$40,055.00	$360.00	0.90%	Will already meet variance levels after upgrade. While current monthly fee is $13.50, the $27 million upgrade in new capital costs plus $1.125 million in additional O&M costs which would bring them to 5 TN and 0.1 TP would raise rates to $30 per month
28,290	$40,130.00	$152.14	0.38%	
23,998	$40,434.00	$187.20	0.46%	and Great Falls (population, treatment levels, etc.) were obtained from HDR.
41,841	$45,004.00	$218.28	0.49%	The numbers for Billings and Great Falls (population, treatment levels, etc.) were obtained from HDR.
399	35806.00	200	0.56%	lagoon to simple mechanical system - ref: Gary Swanson, consulting engineer- 15TN, 2TP

1,290	$29,000	$138.48	0.48%	4000 gallons. Base rate $9.48 at 3000 gallons plus $2.06 for next 1,000 gallons
1,522	$40,320	$409.56	1.02%	Moving from an existing lagoon to mechanical plant with land application. Ref: planning document--To get to variance only. Because this would be a land application system, so theoretically, the N and P would be zero to the Clark Fork
523	$50,729	$362.40	0.71%	Mainly designed to remove ammonia and some TN, but now have NO3 limit. May be able to meet with operational changes. TP of 2 mg/l may require more capital & O&M expenses. Ref: planning document, SRF loan application
1,621	$38,750	$532.20	1.37%	Upgrade to an existing Chemical P-removal plant - actual effluent concentrations are 4 TN and 0.05TP--**already included in current fee**
	$40,379	305.28		Sewer Fee and MHI based on DEQ estimates. DEQ MHI value less than the 2010 USDA county data.
	$38,082	240.00		Sewer Fee and MHI based on DEQ estimates. DEQ MHI value less than the 2010 USDA county data.
		313.80		Sewer Fee based on DEQ estimtes.

or and maintenance cost. As such, these numbers are on the low side.
ses and do not reflect the site-specific conditions at each plant.

ance cost. As such, these numbers are on the low side.
effect the site-specific conditions at each plant.

actor)

p?ST=MT&SF=11A. These MHI values are lower than DEQ's values. For example, the USDA site showed the MHI adison's plant was used at the basis for the calculation since it was 3 MGD. This is a VERY rough estimate.

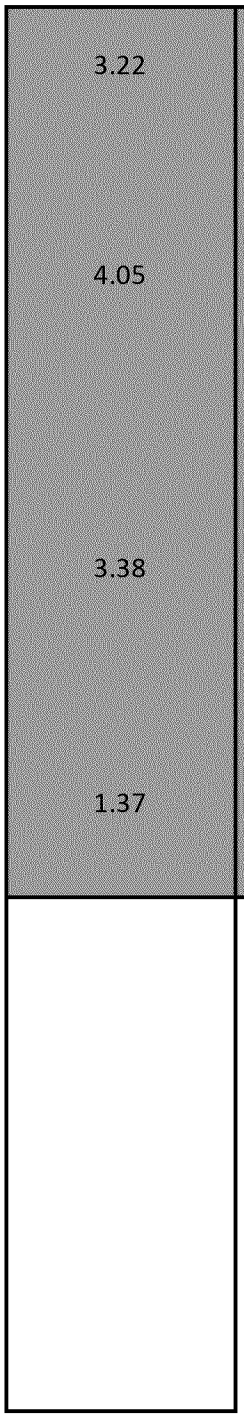
Capital cost (million dollars) to meet the approximate variance levels (WERF)	Annual Capital cost to meet the approximate variance levels (L4 WERF)	Annual Operations costs to meet the approximate variance levels L4WERF	Annual Capital and Operations cost ($)	Annual Additional Cost per Household (increase in sewer rate)	Predicted average household sewer fee to meet criteria
$0.00	$0.00	0.00	$0.00	$0.00	$216
$0.00	$0.00	0.00	$0.00	$0.00	$372
$18.36	$1,472,472.00	109,500.00	$1,581,972.00	$128.23	$394
$0.00	$0.00	0.00	$0.00	$0.00	$360
$85.00	$6,817,000.00	$949,000.0	$7,766,000.00	$323.61	$511
$85.00	$6,817,000.00	$949,000.0	$7,766,000.00	$185.61	$404
$0.68	$54,536.00	7,300.00	$61,836.00	$154.98	$355

$12.50	$1,018,540.00	7,300.00	$1,025,840.00	$795.22	$934
$15.25	$1,261,145.00	602,000.00	$1,863,145.00	$1,224.14	$1,634
$7.56	$606,312.00	100,000.00	$706,312.00	$1,350.50	$1,713
$0.00	$0.00	0.00	$0.00	$0.00	$532

for Cutbank at $29,000 compared to DEQ's estimates of $43,000. I inserted DEQ's MHI values into the table for C

Expected % MHI to Meet Variance Numbers (plus current wastewater fees)	Percent increase in Wastewater bill	2% MHI	Total additional annual amount town would spend total to get to 2% MHI
0.47	0%	$911.88	$6,967,150.56
0.79	0%	$941.30	$8,319,750.20
0.75	48%	$1,046.34	$9,633,963.30
0.90	0%	$801.10	$6,193,485.10
1.26	173%	$808.68	$14,914,277.04
0.90	85%	$900.08	$28,527,193.80
0.99	77%	$716.12	$205,931.88

3.22	574%	$580.00	$569,560.80
4.05	299%	$806.40	$603,990.48
3.38	373%	$1,014.58	$341,090.14
1.37	0%	$775.00	$393,578.80



utbank and the %MHI reduced from 3 to 2.14%.

WERF

Level	Description	Capital Cost ($/gpd)	Operations ($1,000/yr/10 MG Treated)
Level 1	No N and P removal	9.3	250
Level 2	1 mg/l TP; 8 mg/l TN	12.7	350
Level 3	0.1-0.3 mg/l TP; 4-8 mg/l TN	14.4	640
Level 4	<0.1 mg/l TP; 3 mg/l TN	15.3	880
Level 5	<0.01 mg/l TP; 1 mg/l TN	21.8	1370

Costs to Meet Criteria	Capital Cost($million/MGD)	Design Flow	Facility Upgrade Capital Costs ($million)	Annualized Capital Costs (Assumed 20-yr bond & 5% interest; $million/year)
Kalispell	0	5.4	$0.00	$0.00
Bozeman	0	13.8	$0.00	$0.00
Helena	3.4	5.4	$18.36	$1.47
Butte	0	8.5	$0.00	$0.00
Philisburg	3.4	0.2	$0.68	$0.05
Billings	3.4	25	$85.00	$6.82
Great Falls	3.4	25	$85.00	6.817
Columbia Falls	0	0.766	$0.00	0

Annualized Capital Costs (Assumed 20-yr bond & 5% interest; $million/year)	Operations ($1/ MG/day Treated)	Operations Costs ($/ year/ 1 MGD)	Actual Flow	Facility Upgrade Operations Costs ($/year/1 MGD) based on Facility MGD	Membrane Replacement Cost ($24,000 /yr/1 MGD)*Actual Flow
$0.00	0	0.00	3.10	0.00	0.00
$0.00	0	0.00	5.80	0.00	0.00
$1,472,472.00	100	36,500.00	3.00	109,500.00	0.00
$0.00	0	0.00	4.00	0.00	0.00
$54,536.00	100	36,500.00	0.20	7,300.00	0.00
$6,817,000.00	100	36,500.00	26.00	949,000.00	0.00
$6,817,000.00	100	36,500.00	26	949,000.00	0.00
$0.00	0	0.00	0.37	0.00	0.00

Total Operations costs including membrane replacement
0.00
0.00
109,500.00
0.00
7,300.00
949,000.00
$949,000.00
$0.00

Community	Median Household Income (2010) - countywide MHI. Recommend updating for service area.	Number of Households (Population / 2.5) based on 2000 Census	Current Average Annual Household Wastewater Bill	Design Flow (MGD)	Actual Flow (MGD)	Current wastewater MHI	Percent MHI needed to get to RO/Base Numeric Nutrient Criteria (including current fees)
Kalispell	$45,594.00	10,012	$216.00	5.4	3.10	0.47%	1.61%
Bozeman	$47,065.00	14,614	$372.00	13.8	5.80	0.79%	2.23%
Helena	$52,317.00	12,337	$265.44	5.4	3.00	0.51%	1.53%
Butte	$40,055.00	14,041	$360.00	8.5	4.00	0.90%	2.00%
Missoula	$40,130.00	28,290	$152.14			0.38%	N/A
Great Falls	$40,434.00	23,998	$187.20	25	26	0.46%	4.21%
Billings	$45,004.00	41,841	$218.28	25	26	0.49%	2.41%
Philipsburg	$35,806.00	399	$200.00	0.2	0.2	0.56%	2.57%
Cut Bank	$29,000.00	1,290	$138.48			0.48%	
Deer Lodge	$40,320.00	1,522	$409.56			1.02%	
Manhattan	$50,729.00	523	$362.40			0.71%	
Columbia Falls	$38,750.00	1,621	$532.20	0.766	0.37	1.37%	2.27%

Yellow fill = Greater than 2% MHI to reach to certain level of wastewater treatment

Orange fill = Greater than 100% increase in wastewater fee costs to reach to certain level of w

Blue Fill = Town already meets the standard so no new costs or treatment needed

Increase over current Wastewater Bill to Reach RO	Percent MHI needed to get to Variance in SB367 (including current fees)	Increase over current Wastewater Bill to Reach Variance	2% MHI per household	Total additional annual amount Town Would Need to Spend to get to 2% MHI
239%	0.47%	0%	$912	$6,967,151
182%	0.79%	0%	$941	$8,319,750
202%	0.75%	48%	$1,046	$9,633,963
123%	0.90%	0%	$801	$6,193,485
N/A	N/A	N/A	$803	$18,401,513
808%	1.26%	173%	$809	$14,914,277
398%	0.90%	85%	$900	$28,527,194
360%	0.99%	77%	$716	$205,932
	3.22%	574%	$580	$569,561
	4.05%	299%	$806	$603,990
	3.38%	373%	$1,015	$341,090
65%	1.37%	0%	$775	$393,579

astewater treatment

Community	Expected % MHI w/o brine	Expected % MHI with brine
Kalispell		
Bozeman		
Helena		
Butte		